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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,376	06/06/2001	Robert A.H. Brunet	13202.00302	2720

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EXAMINER

SORKIN, DAVID L

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/874,376	<b>Applicant(s)</b> BRUNET ET AL.	
	<b>Examiner</b> David L. Sorkin	<b>Art Unit</b> 1723	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-45 and 47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-22, 24-32, 34, 35, 37, 38, 40-42 and 47 is/are allowed.
- 6) ☒ Claim(s) 43-45 is/are rejected.
- 7) ☒ Claim(s) 23, 33, 36 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 23 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 22. See MPEP § 706.03(k). Though differently worded, these claims have the same scope, because the first and second elements are indistinguishable as claimed.
2. Claim 33 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 32. See MPEP § 706.03(k). Though differently worded, these claims have the same scope, because the first and second elements are indistinguishable as claimed.
3. Claim 36 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 35. See MPEP § 706.03(k). Though differently worded, these claims have the same scope, because the first and second elements are indistinguishable as claimed. Also, it would appear that claim 36 should have depended from claim 33 or 34 which mention a second apex portion, rather than claim 32 which only mentions a first apex portion.
4. Claim 39 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 38. See MPEP § 706.03(k). Though differently worded, these claims have the same scope, because the first and second elements are indistinguishable as claimed.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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6. Claim 43 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The specification fails to describe a "a second plane ... that passes through a center of at least one of the mixing elements ... the two mixing elements being symmetrically disposed with respect <sup>to</sup> ~~two~~ the second plane".

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 44 and 45 are rejected under 35 U.S.C. 102(a & e) as being anticipated by Cormack et al. (US 6,015, 229) and under 102(b) as being anticipated by the corresponding WIPO publication (WO 99/13975). All column and line numbers herein below refer to the US patent. Regarding claim 44, Cormack discloses a fluid radiation treatment system (see col. 1, lines 5-9), comprising at least one mixing element (9) for mixing a flow of fluid having a direction of flow, the at least one mixing triangular shaped element comprising a surface which is acutely angled with respect to each of two planes which are orthogonal to one another, each plane intersecting on a line substantially parallel to the direction of flow, at least one of the planes passing though the center of

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the mixing element. (See Figs. 2b and 3. For example, consider an imaginary pair of orthogonal planes, intersecting on a line parallel to the direction of flow, said line passing through the centroid of the element. While, if one of the two planes is perpendicular to the element the planes would be contrary to the claim, any other of the infinity of such pairs of planes would be in accordance with the claim.) Regarding claim 45, Cormack discloses an ultraviolet radiation water treatment system (see col. 1, lines 5-9 and 35-49) comprising at least one mixing element (9) for mixing a flow of water (4) having a direction of fluid flow, the mixing element comprising a surface having a normal which is acutely angle with respect to a first imaginary plane and a second imaginary plane which is orthogonal to the first plane, the first and second intersecting planes intersecting on a line parallel to the direction of flow, at least one of said two planes passing thorough a center of the at least one mixing element. (See Figs. 2b and 3. For example, consider an imaginary pair of orthogonal planes, intersecting on a line parallel to the direction of flow, said line passing through the centroid of the element. While, if one of the two planes is perpendicular to the element the planes would be contrary to the claim, any other of the infinity of such pairs of planes would be in accordance with the claim.)

***Allowable Subject Matter***

9. Claims 1-22, 24-32, 34, 35, 37, 38, 40, 41, 42 and 47 are allowed. Claims 23, 33, 36 and 39 are also directed to allowable subject matter, but are objected as duplicate claims for the reasons explained above.

***Response to Arguments***

10. Applicant denies that claim 23 is a duplicate of claim 22. However, each of these claims is infringed if and only if, in addition to the limits of claim 19, at least one of the mixing elements comprises a leading edge and a trailing edge. It is impossible to infringe claim 22 without infringing claim 23 and visa versa. Similarly, claims 32 and 33, 35 and 36, 38 and 39 are duplicates.

11. Applicant is incorrect in stating with regard to Cormack ('229), "if one of the planes passes through the center of the mixing element, the normal will lie in that plane". Perhaps applicant is only imaging a plane which bisects the apex angle of the element of Cormack('229); however, an infinite number of other planes, which are parallel to the flow direction, pass through the center of the mixing element. In fact, there are an infinite number of pairs of orthogonal planes, both parallel to the flow direction, such that both planes pass through the centroid of the mixing element.

12. Applicant is incorrect in stating with regard to Cormack ('229), "if one of the planes passes through the center of the mixing element, the normal will lie in that plane" for the following additional reason: unlike claim 1 which refers to a normal at the centroid of the mixing element, claims 44 and 45 refer to a normal which can be to a point on the surface of the element. However, even if claims 44 and 45 were changed to refer to the normal located at the centroid of the element, applicant's quoted statement would still be incorrect for the reason explained in the above paragraph.

***Conclusion***

13. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 571-272-1148. The examiner can normally be reached on 9:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David L. Sorkin  
Primary Examiner  
Art Unit 1723

DLS